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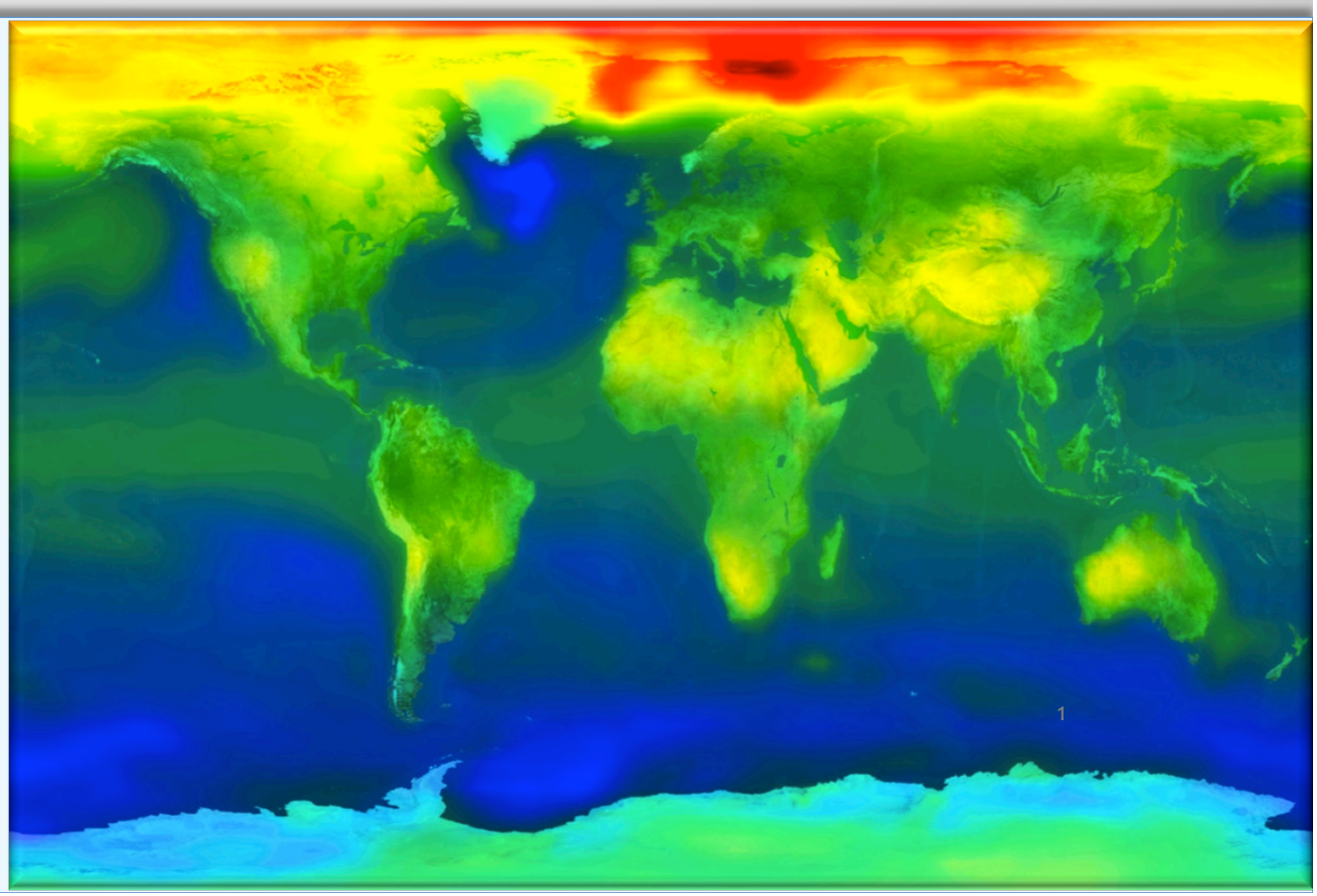
Ultra-scales Visualization Climate Data Analysis Tools (UV-CDAT): Earth System Modeling: Advanced Scientific Visualization of Ultra-Large Climate Data Sets

Dean N. Williams on behalf of the UV-CDAT Project

Analysis and Visualization Framework

Scientific Analysis and Visualization Infrastructure and Framework Presentation ◆ June 27, 2012

DOE BER Climate Visualization Collaborators



Outline

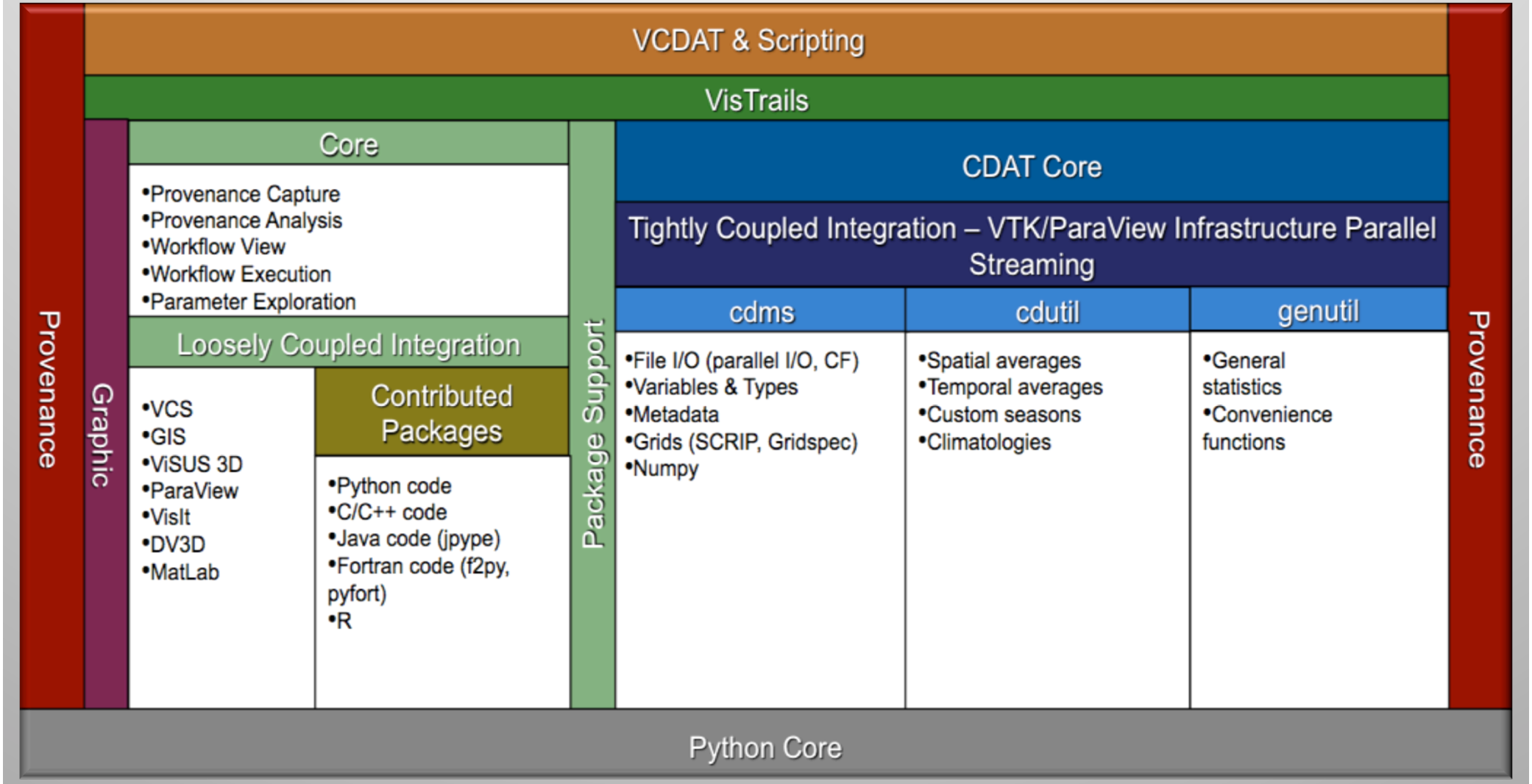
Overview

- Architecture
- Complexity
- Level of software builds and integration
- Functionalities
- Use Cases

Interaction

- YouTube Video Tutorials …
- Live UV-CDAT Demonstration …
- Q & A

Ultra-scale Visualization Climate Data Analysis Tools (UV-CDAT) Architectural Layers



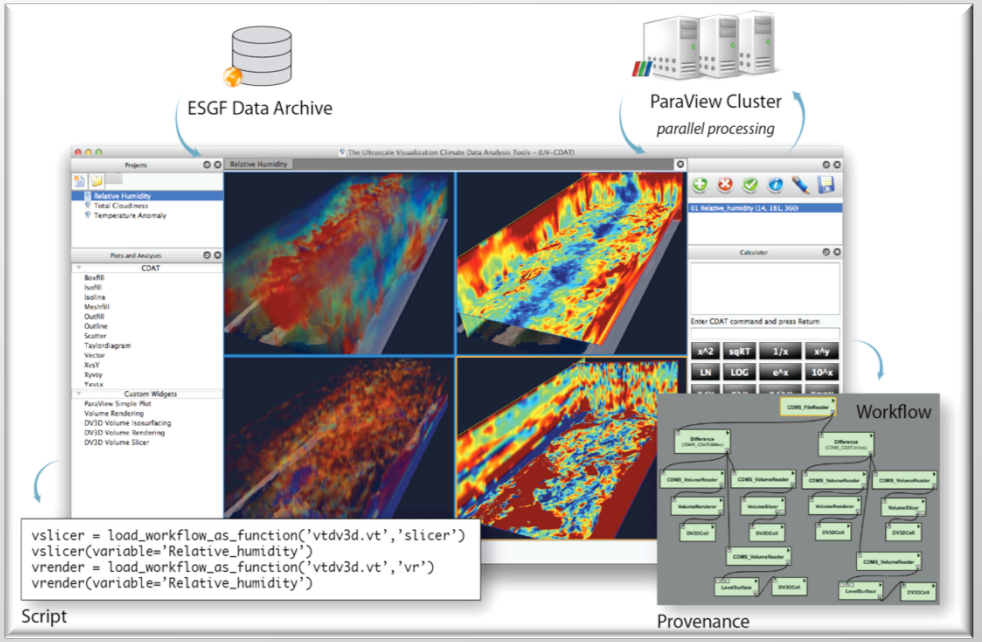
Ultra-large Climate Data Analysis and Visualization (UV-CDAT)

Approach

Integrates several existing, widely used open-source data analysis and visualization packages into seamless environment

- CDAT – Climate data analysis/viz
- VTK - Visualization Toolkit
- R – Statistical analysis
- VisTrails – Workflow Provenance
- VisIt, ParaView, DV3D – 3D Visualization

- Local and remote visualization and data access
- Comparative visualization and statistical analyses
- Robust tools for regridding, reprojection, and aggregation
- Support for unstructured grids and non-gridded observational data, including geospatial formats often used for observational data sets
- Workflow analysis and provenance management



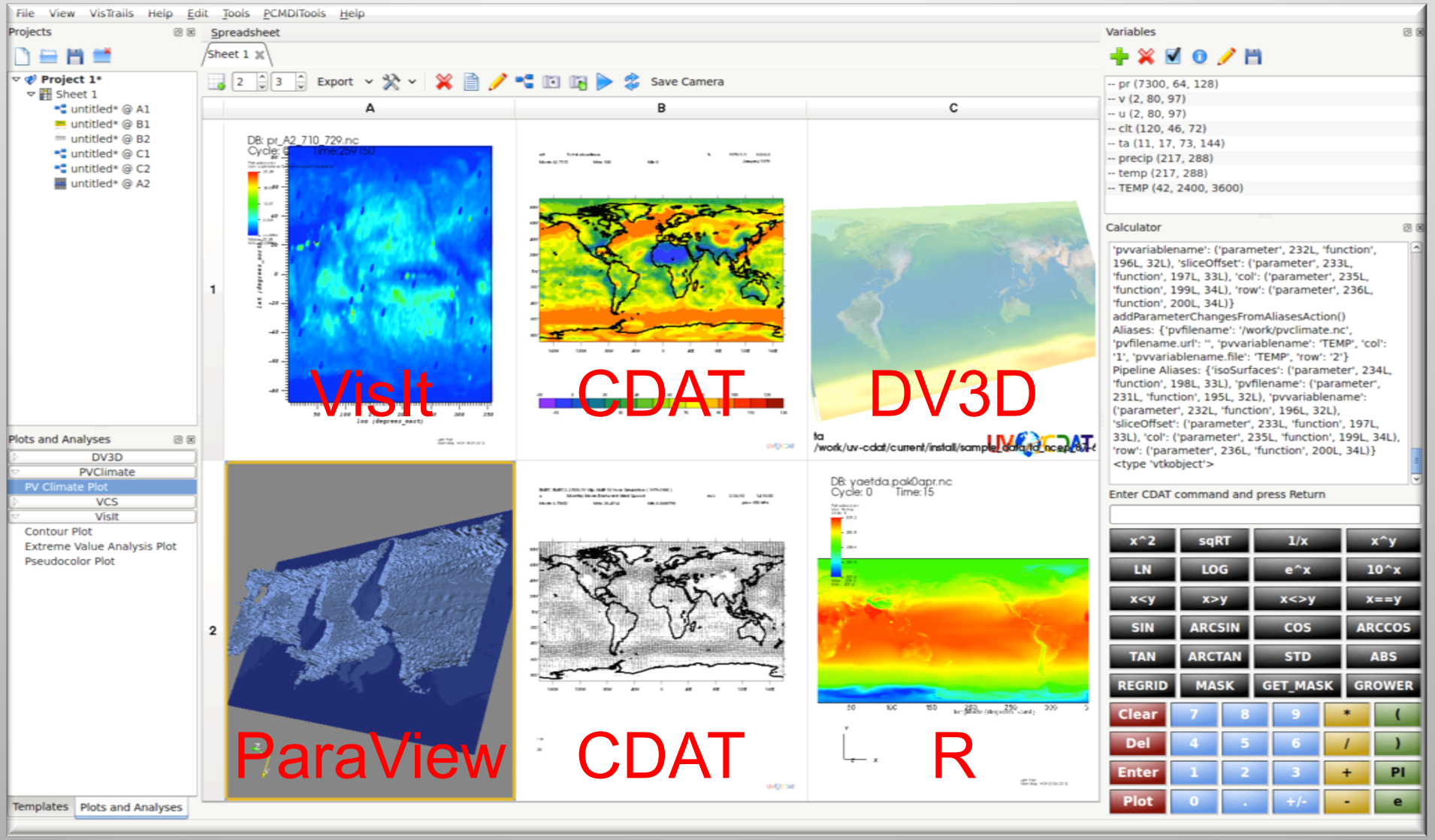
Joint climate data vision for large-scale visualization and analysis.

Highlights

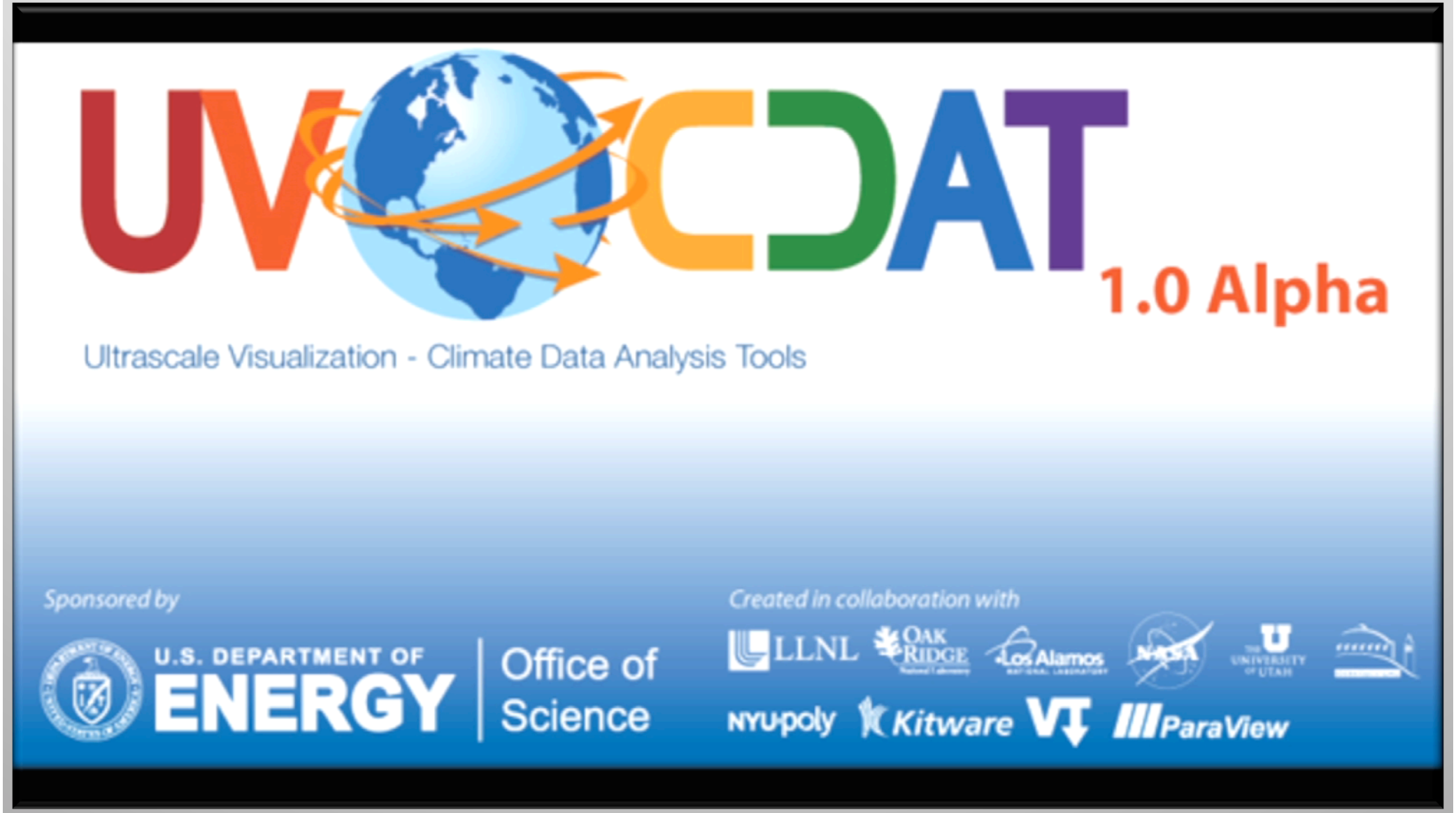
- Official Release of UV-CDAT version 1.0.1
- Website documentation and Video Tutorials
- Ultra-scale Reusable Analysis and Diagnostics Framework (U-ReAD)
- Ensemble Data analysis Environment (EDEN)
- LibCF Mosaic Grids and ESMF Regridding
- Climate Science R&D

Integrated UV-CDAT: Displaying CDAT, DV3D, ParaView, VisIt, and R

http://uvcdat.llnl.gov

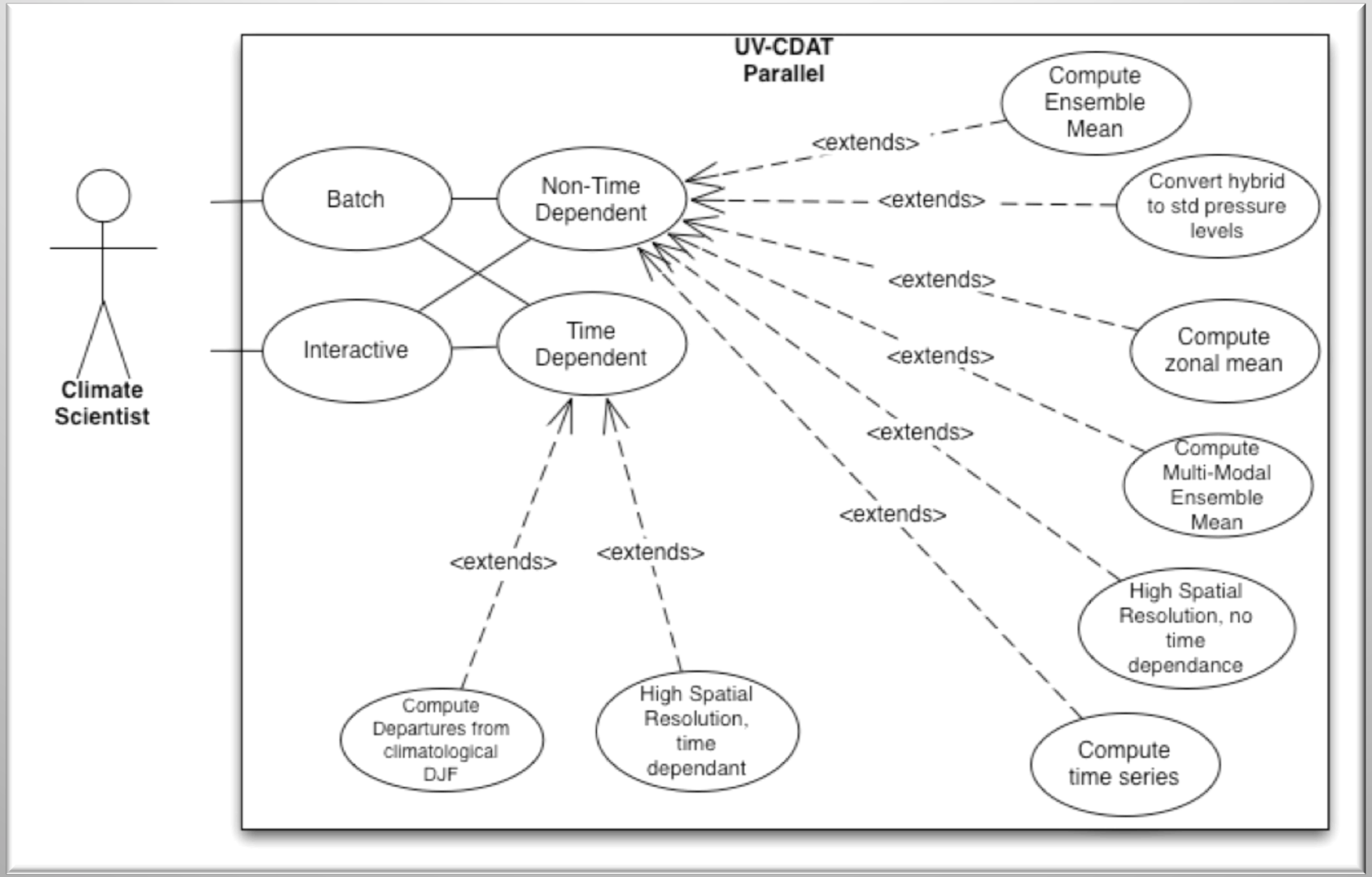


Live UV-CDAT Demonstration



BACKUP SLIDES

Use Cases for UV-CDAT



Official Release 1.0.1 Build and Installation

- UV-CDAT Installation
  - **Binaries** (Ubuntu, Fedora, Mac)
  - **Manual** (Linux, Mac)
  - **URL** (http://uvcdat.llnl.gov/install)